

T News Letter DARS

TEL FORD AND DISTRICT AMATEUR RADIO SOCIETY

www.TDARS.org.uk

FOUNDED 1969

www.TelfordHamfest.co.uk

Issue 293

March/Apr. 2020

www.TDARS.org.uk

Programme

www.telfordhamfest.org.uk

IMPORTANT NOTICE: ALL MEETINGS NOW POSTPONED UNTIL FURTHER NOTICE

March 18 Memories of a fading RSGB Regional Rep. ! (G3UKV)

March 21 (Sat.) "Train the Trainers" at Hortonwood venue. **POSTPONED**

March 25 **ANNUAL GENERAL MEETING—POSTPONED.** Agenda See Pg.2

April 1 **Committee Meeting—2020-21 New committee.**

April 4 (Sat.) Foundation Training course week #1

April 8 **The Nano VNA (Vector Network Analyser). Cheap but vg VFM ! M0KZB**

April 11 (Sat.) Foundation Training course week #2. Exam at HQ following Wed. before tdars meeting.

April 15 **Planning Permission and Antennas. Paul M0PLA and others**

April 22 **RF Interference Identification and Possible Remedies**

April 24-26(W/E) Int. Marconi Day/Weekend. GB8MD, Tywyn, Gwynedd. M/C M0JZH

April 29 **Something Old (and or) Peculiar. What have you got that fits ?**

May 6 **Committee Meeting (7:30pm)**

May 13 **Surplus Sale**

May 20 **Remote Control Vehicles & Planes John M0JZH**

May 27 **HF in the Village Field (behind the Huntsman). M0PLA in Europe SOTA**

June 3 **Committee Meeting 7:30pm**

June 10 **Fox Hunt 2020 Competition. Just one this year. 7:30pm start 144.6MHz**

June 17 **50MHz Trophy—portable prep. + SOTA feedback by Paul M0PLA**

IMPORTANT NOTICE: ALL ABOVE EVENTS AND MEETINGS POSTPONED UNTIL FURTHER NOTICE

USE YOUR RADIO TO KEEP IN TOUCH, AS WELL AS THE GROUPS.IO TDARS REFLECTOR

Editorial

Composing and preparing a regular club Newsletter has its rewards—I always get a kick out of reaching the bottom of the final page, and it just remains then to read through for slips and omissions. A year ago that was on page 11 after having lots of fantastic input from Members. More often it consists of 8 pages, which is fine, especially for the printed version, which then requires just 2 sheets of A4 paper per Newsletter printed. At one time not so long ago, I printed about 40+ copies per issue, but that is now almost halved, since so many members simply download their copy from the TDARS website or the Club's Reflector. Obviously this saves paper and toner powder. Members have also commented that they prefer the larger print size probably using 'zoom' on their PC, tablet (or whatever); also photographs are far clearer and more viewable. Sometimes article input is minimal, as on this occasion. Obviously caused by flooding, climate emergency, coronavirus and 5G phone signals, but not necessarily in that order.

On a different topic, and a last minute addition, the club has purchased 3 newish laptops, to supersede the ancient IBMs in the attic, and a 3 element Cushcraft A3S HF beam for portable use. All should be put to good use in the coming months and years.

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The TDARS Annual General Meeting (due 25/3/20) TEMPORARILY POSTPONED

AGENDA :

- 1) Apologies
- 2) Minutes of AGM held 27 March 2019, and Matters Arising
- 3) Chairman's Report
- 4) Treasurer's Report & presentation of accounts. 2020/21 subscription rates
- 5) Appointment of Auditors 2020/21
- 6) Election of Society Officers and committee
- 7) Presentation of Awards and Trophies

Any other items for inclusion in the Agenda must be sent in writing to the Hon. Secretary, John M0JZH, at least a week before the re-arranged AGM date, when known.

[illegible]

WELCOME to three new TDARS members, following their success in passing the Amateur Radio Foundation (online) exam last month. This followed two training Saturdays at Paul's (M0PLA) work QTH in Hortonwood, to whom we are grateful. ***Tony M7KBO, David M7VXR/P and Barry M7JBT*** have already been heard on the Sunday evening TDARS net (9pm>, 144.600MHz FM) with their shiny new callsigns. Future training sessions will involve several licensed club volunteers. Club membership now stands at around the 45 mark.

Further Foundation and Intermediate training sessions and exams are already in the pipeline for the near future. Graham G7LMF is the guy to contact for further details.

TELFORD & DISTRICT AMATEUR RADIO SOCIETY : 2019-20

CHAIRMAN: Simon Bird G0UFE (01952 401018)

VICE-CHAIRMAN: Martyn Vincent G3UKV (01952 255416)

SECRETARY: John Humphreys M0JZH (07824 737716)

TREASURER: Paul Athersmith M0PLA (07966 969230)

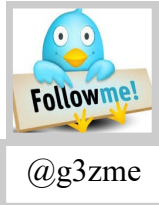
CURATOR : Don Nicholls M0TBQ (01952 411680)

NEWSLETTER EDITOR: Martyn Vincent G3UKV (01952 255416 or 07421 001166)

PUBLICITY/WEBMASTER : Dave GOCER (01630 638699 or 07971 416940)

Committee: Brian G6UDX; Graham G7LMF; Ian M0IRP, Village Hall Committee Liaison officer Martin 2E0TRO.
QSL Manager Paul M0PNN; Assist Curator: Chris 2E0EOH; Trophies/Certs: Martyn G3UKV.

**Two shots of the TDARS Anniversary mugs— Have you got yours yet ?
Still available from TDARS for just £5 each :**



Qtc: News & Information



TDARS MEETINGS EVERY WEDNESDAY AT LITTLE WENLOCK VILLAGE HALL UNLESS INDICATED OTHERWISE ON THE FRONT PAGE PROGRAMME. ROOM BOOKED FROM 7PM - 10PM. MEETINGS USUALLY COMMENCE AT 8PM

Please note: A current membership card may be required to borrow TDARS equipment. Please return borrowed equipment promptly .

Thanks to Dave G0CER the **TDARS website has been relaunched** [tdars.org.uk]. It contains all the previous features but in a more attractive and modern style. If you feel there are omissions, improvements or errors, please let Dave know so that updates can be made for members' benefit. [davekh@gmail.com]

Don't forget the **TDARS AGM** at the end of March (25th). This will be the Society's 50th since the club was formed in 1969 (Wrekin ARS at that time). Meeting starts at 8pm prompt. **Annual Subs** are due (£30 or £24 non-earners) with no increase proposed by the present Committee. Payment by card, cheque or cash.

Portable activity by TDARS Members is a strength of the club.

The following list was compiled in Feb: Organiser in brackets where known.

April 24-27 Tywyn Marconi Day. GB8MD (M0JZH)

May 9-10 Telford Balloon Fiesta (G0UFE, TBC)

May 2, 17, 31 Microwave from Brown Clee (G3UKV)

May 27 HF in the LW Village Field (Anyone! Club night)

May 28-June 1 Mini DX-pedition Guernsey Island. GP3ZME/P (G3UKV)

June 20-21 50MHz Trophy—Long Mynd IO82NN (G0UFE)

July 4-5 VHF NFD from Long Mynd IO82NN (G0UFE, G3UKV). 6m, 2m, 70cm, 23cm

September 5-6 Telford HamFest and G-QRP events. (Various)

Sept. 26-27 Railways on the Air (ROTA) - TBC

October 17-18 Scout Jamboree on the Air (JOTA) Mkt Drayton (G7LMF)

Other dates include various outings by members incl. Simon G0UFE, John M0JZH (HF, VHF) and Martyn G3UKV (Microwave) throughout the spring/summer/autumn. All welcome.



As widely known, there were just 3 entries for the **"Under a Fiver" construction**



competition in February, but a most worthy entry and winner was Paul M0PNN with his 20 element 70cm yagi., shown here being held up by Simon and Eric, together with Simon (Hon.Chairman) presenting the shield at the end of the evening to a happy Paul.

And here's Tony (now M7KBO) showing Mike 'JKX' that he can set up and operate a radio at the **Foundation training** session in January. The second of a series of training sessions now in operation at TDARS.



Foundation training session

Guest speaker Matt G8XYJ, together with his father G4OYX, gave an excellent presentation describing the development of a **6cm (5.6 GHz) station**, and brought along plenty of home-brew kit, mostly made up of cheap Chinese modules from the world of helicopter drones. Note the dual flat-plate antennas.



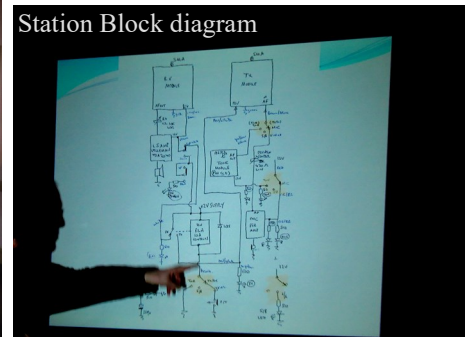
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Matt, G8XYJ



Station Block diagram



After the limited response to the <£5 construction competition, more than two trestle tables were needed to display members' building talents for the **Construction Competition** the following month. Both Beginner's and Main entries were represented—well done to all entrants—it was a pleasure to behold the range and quality of entries. Here's a selection . . .



Peter M1FGN's VFO



David M0YDH with his superb ATV entries, constantly being upgraded and expanded. Paul G8AQA's pre-amp, Paul M0PNN (overall winner) had several projects to display, Simon G0UFE reaches out to describe his 50MHz yagi, Dave M7VXR (novice entry and winner) with his PSU-in-a-toolbox, Dave G8VZT operates his 5.6GHz ATV Tcwr, Peter M1FGN built a 5MHz VFO with full details, and finally Martyn G3UKV had two uWave project entries..

RESULTS CONSTRUCTION COMPETITION:

1st. Paul M0PNN with his rotator controller. 2nd David M0YDH with his 2019 upgraded DATV/Portsdown. 3rd: Martyn G3UKV and his QO-100 TX Satellite up-converter & PA..
Beginners Construction Trophy: Dave Weeks M7VXR and the PSU-in-a-Toolbox.

**Thanks for Newsletter input this time:
Paul M0PNN, Mike G3JKX, Dave G0CER, Peter M1FGN
Next edition May/June 2020
Please keep it coming— Don't just leave it to someone else !**

[Ed: Apologies to Paul— I overlooked this interesting article intended for the last Newsletter]

The Yaesu FT-1900 belonging to my brother has devolved a fault; it works for a few seconds then goes totally deaf but still transmits fine, no problem. The most common fault with this radio is the ceramic filters for narrow and wide fail, leaving the radio deaf. I had my doubts this was the problem because the Ft-1900 works perfectly in wide and narrow FM for a few seconds. I decided to change the filters anyway- they're cheap enough at £2 each.



The filters I replaced are marked M50GWb/M50FWf. What a total pain they were to remove- lead-free solder is awful stuff to remove especially if you can't use a heated solder sucker. Lots of flux and the best quality de-soldering braid, new if possible, helps. I pulled one track but no problem. I just connected to the right decoupling capacitor with a slight bend of the filter leg, a blob of solder. . . it is fixed.

What next? Let's try some Freeze spray on the mainboard: something's breaking down when it's hot after turn on? Nothing here on the main board.

Cheers Paul M0PNN.

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[illegible]

This from the latest issue of IEEE Journal, interesting read. And no, it is not the story of the Wall mounted seal..

This was during the Cold War in the late 1970s. American spies were being arrested, and how they were being identified was a matter of great concern to U.S. intelligence. The first break came with the accidental discovery of a false chimney cavity at the Moscow embassy. Inside the chimney was an unusual Yagi-style antenna that could be raised and lowered with pulleys. The antenna had three active elements, each tuned to a different wavelength. What was the purpose of this antenna, and what transmitters was it listening to?

Gandy pursued these questions for years, not only baffled by the technology, but buffeted by interagency disputes and hampered by the Soviet KGB. At one point he was issued a "cease and desist" letter by the CIA, which, along with the State Department, had authority over security at the embassy. These agencies were not persuaded that there were any transmitters to be found: Regular scans for emissions from bugs showed nothing.

It was only when Gandy got a letter authorizing his investigation from President Ronald Reagan that he was able to take decisive action. All of the electronics at the embassy "some 10 tons of equipment" was securely shipped back to the United States. Every piece was disassembled and X-rayed.

After tens of thousands of fruitless X-rays, a technician noticed a small coil of wire inside the on/off switch of an IBM Selectric typewriter. Gandy believed that this coil was acting as a step-down transformer to supply lower-voltage power to something within the typewriter. Eventually he uncovered a series of modifications that had been concealed so expertly that they had previously defied detection.

A solid aluminium bar, part of the structural support of the typewriter, had been replaced with one that looked identical but was hollow. Inside the cavity was a circuit board and six magnetometers. The magnetometers sensed movements of tiny magnets that had been embedded in the transposers that moved the typing "golf ball" into position for striking a given letter.

Other components of the typewriters, such as springs and screws, had been repurposed to deliver power to the hidden circuits and to act as antennas. Keystroke information was stored and sent in encrypted burst transmissions that hopped across multiple frequencies.

Perhaps most interesting, the transmissions were at a low power level in a narrow frequency band that was occupied by intermodulation overtones of powerful Soviet TV stations.

The TV signals would swamp the illicit transmissions and mask them from detection by embassy security scans, but the clever design of the mystery antenna and associated electronic filtering let the Soviets extract the keystroke signals.

When all had been discovered, Haseltine recounts how Gandy sat back and felt an emotional kinship with the Soviet engineers who had designed this ingenious system. This is the same kinship I feel whenever I come across some particularly innovative design, whether by a colleague or competitor. It is the moment when a technology transcends known limits, when the impossible becomes the do-able. Gandy and his unknown Soviet opponents were working with 1970s technology. Imagine what limits will be transcended tomorrow! “

[Ed Note: Dave described this as an "Interesting item picked up from elsewhere..."]

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Holiday Radio—by Mike Street G3JKX

'Why not take a rig on holiday?' Madeira, a CT callsign, what a prospect. I had written to the hotel manager to see if I could use a remote part of the pool area on the roof away from the water and got permission. Out with the good old K2 rig for a quick test. OK, it still works and takes less than 200mA on Rx. Great. Better take two small 12v sealed batteries and a charger. I was given a good telescopic fibre-glass pole for a Christmas present but I needed an aerial. Let's see; a 40m dipole needs 33 feet each leg. So I cut a 1 foot piece of cardboard and wound on 17 turns of thin insulated wire. (twice): Yes, that's a bit too long but you need extra for joining on to the centre piece and the end insulator. I had a BNC/2 screw terminal adapter and mounted this on a flat plastic aerial centre-piece from Sotabeams. What else? A small AMU to tweak the droopy dipole: Key: Headphones and boom mic combo. Log book and pen. RSGB forecast of condx from RadCom, re-usable ties to bind the pole's base tube to the railings. Coax with BNC on each end. String for the dipole ends. There would be tables and chairs up top of course. It all went in a 4 wheel suitcase weighing in at 19 Kilos, well under the airline weight limit. No troubles at the airport: it all arrived safe and sound on the island. Lovely and warm. Good night's sleep and up early eager to get going.....but no, the pool man doesn't arrive until 9 to unlock, so back to bed. Up at 8 and breakfast. There's a tour planned for today so must survive this until the evening to set up the aerial. After a dinner out, back to our hotel and ...the pool area is locked when it gets dark even though it says 'open until 10' in the hotel info ! Hey Ho..... Next day, check the batteries...one has not survived the journey! Round the corner from the hotel is an old fashioned radio shop. They have a replacement. 30 Euros later, it's back up to the roof with pole and the ties and get it set up easily. Back down 3 floors to collect the aerial parts, coaxial cable, rig etc and am up and running on 40m but.....there's no propagation apart from a VERY weak Moroccan station. If your geography is not good, Madeira is below the Canaries out in the Atlantic, right opposite Marrakesh, Morocco. Balmy weather year round (supposedly). I knew from the RadCom that early morning and evening were to be the best time to operate but early was out. That evening...no propagation. Not a sausage. Comforted myself with a very large ice-cream. Next day it rained cats and dogs (!) all day, so no radio. Next day it blew a gusty gale all day, so there was no outdoor eating or radio (couldn't paper log); I had been e mailing to TDARS and Martyn suggested a switch to 20m. So next day cut the dipole in half to 16.5 ft each side. Wow! loads of signals but a contest was on. My 5 watts had no chance. The QRP frequency had a huge DL on it. Called and called but gave up. I am afraid. lessons learnt. Take minimum kit. Check timings of things. Make the dipole multiband. I believe Sotabeams has low power traps for sale. Go somewhere where the WX is always fine and use a seaside hotel where the aerial will work really well on the seashore. Have a vertical end fed wire and a counterpoise system as well as the dipole.

73 Mike G3JKX

PS NEVER use Carbon Fibre pole.

5 MHz VFO —by Peter M1FGN

[Ed: Peter entered this project and notes in the **tdars Construction Competition in March**]

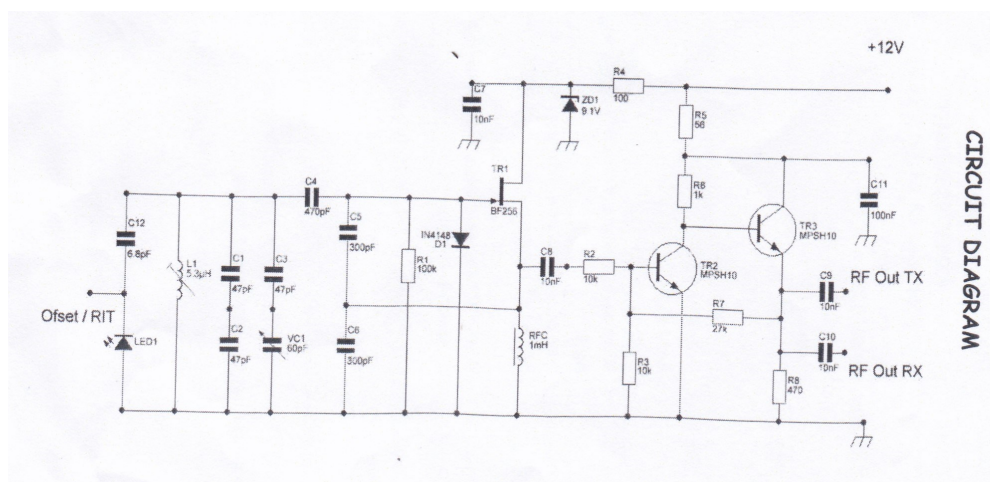
G-QRP Club founder George Dobbs G3RJV (SK) used the same VFO circuit, or variations of it, in many projects over the years.

This version is more up to date because it uses currently available components and is configured for about 5MHz.

I constructed it at the Buildathon 2019, on the eve of the Telford HamFest.

Cost is about £20.00, so although it is one of many of George Dobbs “Small but perfectly formed” circuits he liked to create/obtain/publish etc, it is too costly for the club’s ‘Under a Fiver’ competition.

There are quite a few harmonics at $2 \times f_{osc}$, $3 \times f_{osc}$, $4 \times f_{osc}$, etc—so in any application you would have to ‘swat’ these with a good filter on the VCO output.



Stability Road Test:

“Connect your VFO to a good power supply and frequency counter, or listen on a stable receiver with good frequency readout.

Set the VFO frequency to 5.262 MHz, the QRP calling frequency on 60 metres**

For the Buildathon we will check the frequency every minute for 5 minutes. In use, drift should settle down after 10-15 minutes.

For serious use, the polyvaricon should be replaced by a good air-spaced variable with a reduction drive.”

** UK 60m band is 5.2585 MHz to 5.4065 MHz—not continuously

[Ed note: As I understand it, this was Peter’s entry at the Telford Buildathon last year. I also heard that he was the winner of the ‘Stability Road Test’ (described above) at this event.

Congratulations Pete: So here’s a couple of piccies taken at that time . . .]

